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AUTHOR Geis, Lynna
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ABSTRACT

This study was designed to develop and standardize parallel forms of a criterion-referenced test for measuring the proficiency of undergraduate college students in the application of syllabication skills. Twenty-seven classes in 14 colleges and universities participated in the final standardization of the tests. Analysis of results indicated that the measure was valid and reliable, that it could be administered within the time limits of one college class period, and that the criterion level of 85% accuracy was very similar to the established criterion level. (Author/AA)

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Lynna Geis, Ph.D.
Director, Learning Skills Center
Moore-Norman Area Vocational-
Technical School
N.W. 12th and Franklin Road
Norman, Oklahoma 73069

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ABSTRACT

DEVELOPMENT AND STANDARDIZATION OF PARALLEL FORMS OF A SYLLABICATION SKILLS TEST

This study was designed to develop and standardize parallel forms of a criterion-referenced test for measuring the proficiency level of undergraduate college students in the application of syllabication skills. The test items were of a multiple-choice type.

Two pilot studies were conducted previous to the final standardization for purposes of refining the final test forms. Twenty-seven classes in fourteen public and church affiliated colleges and universities participated in the final standardization of the tests. The tests were administered to students who represented various ethnic groups. The final statistical analysis of data included a sample of 740 students.

Conclusions from the examination of the results of the data analysis obtained in the study were: a valid and reliable measuring instrument was developed as an efficient manner for determining college students' abilities to apply syllabication skills; form A or B of the Syllabication Skills Test can be administered within the time limits of one college class period (approximately 40 minutes); the arbitrary criterion level of

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eighty-five percent accuracy was logical in that the means of the tests were very similar to the established criterion level; judges in the field of reading considered the tests to be of educational value in the preparation of teachers and parallel forms of the Syllabication Skills Test were developed.

DEVELOPMENT AND STANDARDIZATION OF PARALLEL FORMS OF A SYLLABICATION SKILLS TEST

Implicit in most of the recommendations for teaching reading is the inclusion of structural analysis as a part of the instructional program for developing skill in word recognition. Structural analysis is a process by which a reader deals with root words and their inflected and derived forms. This includes variant endings, compound words, prefixes, suffixes, contractions, and syllabication (Bond and Wagner, 1966).

Reading authorities have written of the necessity of the acquisition of syllabication skills for students to become mature readers. Heilman (1968, p. 77) proposes three purposes for syllabication: (1) pronunciation of words not instantly recognized as sight words, (2) determining correct spelling of many words, and (3) dividing words at the end of a line of writing.

Schnepf and Meyer (1971) attested to the importance of combined techniques for word recognition when they emphasized the necessity for all programs to eventually include structural analysis. Spache and Spache (1969) considered syllabication functions as an aid to word recognition by helping the pupil break words into smaller units, pronounce these, blend, and thus recognize words in his auditory vocabulary. Most normal readers, as they mature in reading in intermediate and upper elementary grades become increasingly dependent upon their knowledge of syllables and less upon phonics.

The importance associated with the development of word analy-

sis skills by college students who are prospective teachers is demonstrated in a research study reported by Austin and others (1961) whcih indicated that:

> ...many prospective teachers themselves do not know these techniques. Many of the current generation of college students were taught to read by methods which did not include structural and phonetic analysis and thus have never been exposed to them. If they are able to use a variety of approaches in their teaching, they should know the basic elements of these ways of unlocking words. Therefore, it is recommended: that college instructors take greater responsibility in making certain that their students have mastered the principles of phonetic and structural analysis.

The primary reason for emphasizing teachers' proficiency in the application of the word analysis skills is to insure their ability to provide adequate instruction to others. This study focused on the development and standardization of a criterion-referenced syllabication skills test composed of multiple-choice items. These tests were designed to evaluate the individual proficiency of college students and in-service teachers.

METHOD

Construction of the Tests

Structural analysis generalizations to be tested were selected by applicability of usage in vocabulary in five basal reading series (Wood, 1973). Three subject-matter experts were consulted for verification of the educational validity of the generalizations. The test items were constructed of words that tested these nine generalizations (Curry and Rigby, 1969, p. v). The generali-

zations utilized were:

1. A single consonant usually goes with the vowel which follows when that consonant appears between two vowels.
2. A single consonant appearing between two vowels usually goes with the preceding vowel if that vowel is short and within an accented syllable.
3. No syllabic division should be made between consonants that constitute a consonant blend or consonant digraph.
4. The syllabic division of two consonants, which are neither blend nor digraph, and which appear between two vowels, usually comes between the two consonants.
5. Prefixes usually form separate syllables.
6. Suffixes usually form separate syllables.
7. The suffix -ed, if immediately preceded by the letter d or t, forms a separate syllable. The suffix -ed combines with other letters to form one syllable if not preceded by d or t.
8. A word ending in le, when the le is preceded by a consonant, forms a final syllable with that consonant and the le. (Note: le stands alone as the final syllabe when preceded by ck).
9. A syllabic division is made between words which form a compound.

Four forms of the one hundred item test were constructed. The final multiple-choice item tests were designed for administration in one class period. Mastery of these skills was determined by a proficiency score of eighty-five or above.

Content validity involved essentially the systematic exam-

ination of the content of the tests to determine whether they covered a representative sample of the behavior domain that was measured. Content validity was built into the tests from the outset by choosing items to test the nine structural analysis principles. Concurrent validity was evaluated by giving tests intended as a substitute for a less convenient procedure, and comparing the performance of the test directly with the test that is less convenient.

Forms A-1 and B-1 consist of the identical items as A and B respectively, but the student was asked to syllabicate each word by dividing it into its syllabic parts. Forms A-1 and B-1 were traditional forms of syllabication tests, and are less convenient than forms A and B. Concurrent validity was evaluated by using A, multiple-choice form and A-1, traditional testing form. Pearson correlation coefficients of students' scores were computed on the two tests. The same procedure was used for test B and B-1.

Forms A and B, multiple-choice tests, were written as parallel forms to test parallel form (immediate) reliability. The multiple-choice test items were constructed with four options given for each item. The options consisted of one correct response and three distracters.

The Kuder-Richardson internal consistency formula number twenty (KR 20) was used to compute the reliability estimate on all forms. This gave an indication of the extent to which individuals showed stability of performance.

Means, standard deviations and standard errors of measurement were computed for all forms to determine whether the tests were parallel in these respects. For purposes of reporting and future

revisions of the test, the difficulty index of each item was computed and the point-biserial correlation by forms was reported.

Directions were written to be given to the course instructors for administration of the tests. The order of presentation of the four forms was rotated, one-fourth of the students taking each test at one time. This procedure was used to control for test-retest practice effects and other extraneous variables such as fatigue or boredom with the tests.

Two pilot studies were conducted for analysis and revision of the tests. The pilot studies provided a check on the time limits and on the procedures of administration. The data collected in pilot study one were used for item revision. The test items changed were those which had negative point bi-serial correlations and had syllabic divisions within the word that were exceptions to other generalizations. An item analysis and point bi-serial correlations of test items did not warrant a revision after pilot study two in the test forms used for the final standardization.

Subjects

A purposeful non-random sampling procedure was used for selecting the subjects included in the study. Subjects were enrolled in undergraduate reading courses in teacher education programs. Fourteen public and private colleges and universities were selected to represent a cross-sectional sampling throughout the United States. Tests were administered to students in twenty-eight classes in these institutions.

A total of 807 students participated in the study; however, sixty-seven students did not complete all forms of the test. The final number of observations used for analysis of the data

consisted of 740 students who completed all test forms. Tests were administered in the Spring of 1975 after students had received instruction in the application of syllabication generalizations.

Results

Content validity was judged by frequency and distribution of generalizations by test item. Results revealed that the tests measured the domain set forth in the test specifications. Examination of the frequency and distribution of items showed that nearly equivalent weights were achieved in both test forms. Three judges attested to the value of these syllabication generalizations to the field of reading and to the content measured by the Syllabication Skills Tests.

Pearson correlation coefficients for evaluation of concurrent validity yielded significant correlations at the .001 level for forms A and A-1 (.859), A and B-1 (.823), A-1 and B (.857) and B and B-1 (.873). Concurrent validity coefficients are presented in table 1. Pearson correlation coefficients for evaluation of

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Insert Table 1 about here

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parallel form (immediate) reliability yielded significant correlations at the .001 level for forms A and B (.843); A-1 and B-1 (.866). Refer to table 2. Kuder-Richardson twenty coefficients

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Insert Table 2 about here

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for evaluation of internal reliability (see table 3) yielded

significant correlations at the .001 level of A (.87), A-1 (.92), B (.88) and B-1 (.94). Means, standard deviations and the standard

Insert Table 3 about here

error of measurements showed the test forms to be parallel (see Table 4).

Insert Table 4 about here

Conclusions

Conclusions from the examination of the results of the data analysis obtained in the study were:

1. A valid and reliable measuring instrument was developed as an efficient manner for determining college students' abilities to apply syllabication skills.

2. Form A or B of the Syllabication Skills Test can be administered within the time limits of one college class period (approximately 40 minutes).

3. The arbitrary criterion level of eighty-five percent accuracy was logical in that the means of the tests were very similar to the established criterion level.

4. Judges in the field of reading considered the tests to be of educational value in the preparation of teachers.

5. Parallel forms of the Syllabication Skills Test were developed.

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TABLE 1

CONCURRENT VALIDITY COEFFICIENTS OF SYLLABICATION SKILLS TEST

Test Forms	Number of Cases	Test Forms A-1	Test Forms B	Test Forms B-1
A	740	.859*		.823*
A-1	740		.857*	
B	740			.873*

*Significant at .001 level

TABLE 2

ALTERNATE FORM (IMMEDIATE RELIABILITY COEFFICIENTS OF SYLLABICATION SKILLS TEST)

Test Forms	Test Forms B	Test Forms B-1
A	.843*	
A-1		.866*

*Significant at .001 level

TABLE 3

INTERNAL RELIABILITY COEFFICIENTS OF SYLLABICATION SKILLS TEST

Test Forms	Reliability Coefficients
A	.87*
A-1	.92*
B	.88*
B-1	.94*

*Significant at .001 level

TABLE 4

MEANS, STANDARD DEVIATIONS AND STANDARD ERROR OF MEASUREMENT OF THE SYLLABICATION SKILLS TESTS

Test Forms	Means	S.E. Meas.	S.D.
A	81.2	3.4	9.8
A-1	80.7	3.6	10.2
B	80.6	3.5	10.0
B-1	82.1	3.6	10.1